

ACCEPTANCE OF WEB-BASED TECHNOLOGY AS A HARMONIOUS COMMUNITY OF CITIZEN WITH THE CONCEPT OF TECHNOLOGY MODEL ACCEPTANCE

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Abstract

The internet in this era is a way of communicating the most quickly and effectively in disseminating information. Through the internet, various information can be received using several ways, such as websites, email and others. To determine the success or failure if an application of information technology, a Technology Acceptance Model was developed based on Theory of Reasoned Action to explain and predict the acceptance of technology by users. This model places the factors of attitude, intention and behavior of users by using 2 main input variables, namely usefulness and easy of use. Empirically this model has been shown to provide an overview of the behavior of information technology users, here we analyze to determine the level of acceptance of website usage in modeling the Structural Equations by users identifies through the user's perceptions and behavior in using the website.

Keywords: Acceptance, Community, Theory of Reasoned Action (TRA), Usefulness, Easy to Use, SEM

1. Introduction

The internet in this era is a way of communicating the most quickly and effectively in disseminating information. Through the internet, various information can be received using a number of ways, such as websites, e-mail, chat, blogs, and others. The internet can also be accessed not only through a computer, but can also be accessed through a mobile device that has been implanted by the module to connect to the internet network. This fact is what causes the development of the internet in Indonesia to grow rapidly. From research by Internet World Stats [1], in 2008, Indonesia experienced an increase in internet users by 1150% compared to 2000. Indonesia ranked fifth from the Asian countries that made internet access in 2008 and ranked fifth from all countries in the world that accessed the Internet during 2008.

In 1989 and 1992, Fred Davis and Richard Bagozzi developed a model that was used to determine the success or failure of an application of information technology [2]. The technology acceptance model (TAM) was built based on the Teory of Reasoned Action (TRA) developed by Ajzen and Fishbein to explain and predict the acceptance of technology by users. The TAM model in detail explains the acceptance of information technology with certain dimensions that can influence the acceptance of technology by users. This model places the factors of attitude, intention, and behavior of users by using 2 main input variables, namely the usefulness and ease (easy of use). Empirically this model has been shown to provide an overview of the behavior of information technology users, namely many information technology users can receive IT because it is in accordance with what Iqbaria (1997) wants [3].

In 2018, the Rukun of Griya Sangiang Mas Residents began to use the internet (website

<https://kdi.or.id/erwe>) as a means of communication for their citizens. On the website, there are several models of communication processes that are built, one of which is the presence of special forum facilities that are created in accordance with the theme they want to appoint. This forum includes communication between residents, residents and heads of citizens. This website also shows the activity schedule. The model used to describe the form of behavioral relationships in website acceptance as a means of citizen communication by using the Technology Acceptance Model (TAM) model to be analyzed using AMOS software.

II. Literature

2.1. Acceptance of Information Technology

States that currently the obstacles to implementing ICTs are largely due to the factors of ICT users. The level of readiness of the user to accept the technology has a major influence in determining whether or not the application of the technology is successful [4].

Behavioral aspects of Information Technology Acceptance

The use of Information Technology (IT) for companies is determined by many factors, one of which is the characteristics of IT users [5]. The different characteristics of IT users are also influenced by aspects of perception, attitudes and behavior in accepting IT usage. The user of a system is a human being who psychologically has certain behaviors that already exist in him, which causes the behavior aspect in the user of an information technology to be an important factor in everyone who uses information technology.

1. Technology Acceptance Model (TAM).
2. Computer Self Efficacy.
3. Perceived Ease of Use.
4. Perceived Usefulness.

5. Attitude Toward Using.
6. Intention to Use.
7. Actual Usage Behavior.

2.2. Structural Equation Modeling (SEM)

Structural Equation Model (SEM) is a set of statistical analysis techniques that combine several aspects of path analysis and confirmatory factor analysis to estimate several equations simultaneously and tiered. Structural Equation Modeling (SEM)/ Structural Equation Model is a combination of two separate statistical methods namely factor analysis developed in the field of psychology / psychometrics and the simultaneous equation model (Simultaneous Equation Modeling) developed in the field of econometrics [6] [7].

2.2. Hypothesis

The general hypothesis proposed in this study is:

$$H_0 \quad \Sigma p = \Sigma s$$

It is suspected that the model built on the theory in this study is supported by facts in the field. It is indicated that the sample variance-covariance matrix (observation data) is the same as the estimated variance-covariance matrix (population) based on the model constructed.

The specific hypotheses in this study are:

- H₁ Perception of Self Ability in Computer (Computer Self Efficacy / CSE) affects the Ease of Perception using the erwe website (Perceived Ease of Use / PEOU)
- H₂ Perceived Ease of using the erwe website (Perceived Ease of Use / PEOU) affects the Benefit (Perceived Usefulness / PU)
- H₃ Perceived Ease of use (Perceived Ease of Use / PEOU) affects the Attitude Toward Using (ATU)
- H₄ Attitude Toward Using (ATU) effect on User Behavior (Intention to Use/ITU)
- H₅ User Behavior (Intention to Use / ITU) affects Actual Usage Behavior (AUB)
- H₆ Perception of Use (Perceived Ease of Use / PU) affects the Attitude Toward Using (ATU)
- H₇ Benefit Perception (Perceived Ease of Use / PU) affects the User Behavior (Behavioral Intention to Use / ITU)
- H₈ Perceived Ease of Use has an effect on Actual Usage Behavior (AUB)
- H₉ Perception of Self Ability in Computers (Computer Self Efficacy / CSE) affects the Attitude Toward Using (ATU)
- H₁₀ Perception of Self Ability in Computer (Computer Self Efficacy / CSE) influences User Behavior (Intention to Use / ITU)
- H₁₁ Perception of Self Ability in Computer (Computer Self Efficacy / CSE) influences Actual Usage Behavior (AUB)

III. Research methods

Explanatory type of research, namely research that contains evidence of hypotheses built through theory

with the Technology Acceptance Model (TAM) approach, tested using AMOS software. The sample size must be met in SEM modeling, the minimum is 100. This study uses 130 samples, therefore the number of samples has met the sample size requirements.

IV. Results and Discussion

Normality Test

In the Assessment of Normality Table presented in the Assessment of Normality Table contained in Appendix 4, it can be seen that the values in the column c.r. everything is in the range of recommended values which is between -2.58 to 2.58. Therefore it can be said that data is normally distributed. Data meets the requirements for further analysis

Outliers

Outlier test in this study, the mahalanobis value of the distribution is below tabel2 table 35.17246 (5%, 23) with the number of indicator variables as much as 23. This means that there are no outliers, so the data is declared good and further analysis can be carried out.

Multicollinearity and Singularity

The covariance matrix determinant value obtained is 51345,276 far from zero, so it can be concluded that there is no multicollinearity and singularity problem in the analyzed data, so the data is declared valid.

Model Suitability Test

The theory-based model testing is done using software AMOS Version 7.0. Following are the results of testing the model:

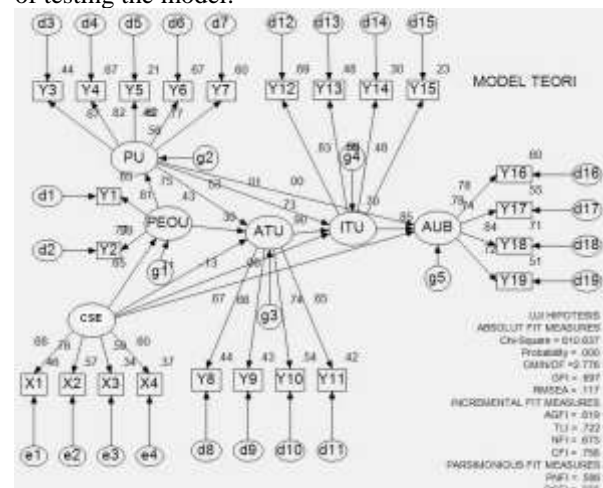


Fig. 1. Early Model of Research

The hypothesis that explains the conditions of empirical data with models / theories is:

- H₀ Empirical data is identical to theory or model. (Hypothesis is accepted if $P \geq 0.05$)
- H₁ Empirical data is different from theory or model. (The hypothesis is rejected if $P < 0.05$)

Based on Fig. 1, it is shown that the theoretical model proposed in this study is not in accordance with the observed population model, because the probability value (P) of the research result = 0.000

means that it does not meet the requirements, namely $P > 0.05$ [7].

In the interim, it can be concluded that the output model does not meet the H_0 acceptance requirements, so that the next hypothesis cannot be tested. However, so that the proposed model is declared fit, modification of the model can be carried out according to the one suggested by AMOS.

This study was conducted to analyze six latent variables, one of which (CSE) is an exogenous variable and the other five variables (PU, PEOU, ATU, ITU and ASU) are endogenous variables. These latent variables, measured through indicator variables, are listed in Table 1

Table 1. Observed research variables

| Variable Laten | Construction dimension | Number of statements Questionnaire |
|------------------------------|--|------------------------------------|
| Computer Self Efficacy (CSE) | X1=can always succeed in solving computer problems | 1 |
| | X2=know how to handle unexpected computer situations | 1 |
| | X3=keep calm when facing difficulties in computing | 1 |
| | X4= usually can find several solutions in computing | 1 |
| | Sum | 4 |
| Perceived Easy of Use (PEOU) | Y1 = Easy to use | 1 |
| | Y2 = Easy to navigate | 1 |
| | Sum | 2 |
| Perceived Usefulness (PU) | Y3=Faster | 1 |
| | Y4 = More accurate | 1 |
| | Y5 = Useful | 1 |
| | Y6 = More effective | 1 |
| | Y7 = Easier | 1 |
| | Sum | 5 |
| Attitude Toward Using (ATU) | Y8 = Happy | 1 |
| | Y9 = Trust | 1 |
| | Y10 = satisfied | 1 |
| | Y11 = Choose to use | 1 |
| | Sum | 4 |
| Intention to Use (ITU) | Y12 = Intention to always use | 1 |
| | Y13 = Intention to use (30 minutes disposable) | 1 |
| | Y14 = Will communicate via the website | 1 |
| | Y15 = Want to join the user forum | 1 |
| | Sum | 4 |
| Actual Usage Behavior (AUB) | Y16 = Understand how to use | 1 |
| | Y17 = Ask / discussion | 1 |
| | Y18 = Deliver satisfaction | 1 |
| | Y19 = Help friends / relations in using | 1 |

| | | |
|--------------|---------|-----------|
| | website | |
| | Sum | 4 |
| Total | | 23 |

Discussion

Reliability Testing

By conducting a joint reliability test, the recommended approach is to look for the value of the Construct Reliability and Variance Extracted from each latent variable by using information on the loading factor and measurement error. Construct Reliability states an internal consistency measure of indicators of a construct that shows the degree to which each indicator indicates a general construct / latent. While Variance Extracted shows these indicators have represented well the latent construct developed [7] and [8]

Table 2. Combined Reliability Test

| Variable Laten | Construct Reliability | Variance Extracted |
|----------------|-----------------------|--------------------|
| CSE | 0.754 | 0.437 |
| PEOU | 0.769 | 0.624 |
| PU | 0.839 | 0.519 |
| ATU | 0.772 | 0.462 |
| ITU | 0.776 | 0.469 |
| AUB | 0.854 | 0.594 |

The table above shows that CSE, PEOU, PU, ATU and ITU have Construct Reliability values above 0.70. The latent variables PEOU, PU, and AUB meet the Variance Extracted value limit which is ≥ 0.50 . Thus it can be said that each variable has good reliability. Whereas the latent variables CSE, ATU and ITU have Variance Extracted values that are < 0.50 . Thus it can be said that each variable lacks good reliability.

Table 3. Hypothesis Testing Results

| Hipotesis | Estimation | Sig | Results |
|---------------------------------|--------------|--------------|-------------------------------|
| H₁ (CS –PEOU) | 0.289 | 0.000 | Decline H₀ |
| H₂ (PEOU–PU) | 1.113 | 0.000 | Decline H₀ |
| H₃ (PEOU–ATU) | 0.470 | 0.000 | Decline H₀ |
| H₄ (ATU–ITU) | 0.344 | 0.002 | Decline H₀ |
| H₅ (ITU–AUB) | 0.497 | 0.000 | Decline H₀ |
| H₆ (PU–ATU) | 0.328 | 0.000 | Decline H₀ |
| H₇ (PU–ITU) | 0.308 | 0.000 | Decline H₀ |
| H₈ (PU–UB) | 0.213 | 0.005 | Decline H₀ |
| H₉ (CSE–ATU) | 0.089 | 0.167 | Aceppted H₀ |
| H₁₀ (CSE–ITU) | 0.112 | 0.195 | Aceppted H₀ |
| H₁₁ (CSE–AUB) | 0.027 | 0.735 | Aceppted H₀ |

Based on significance $\alpha < 0.05$, it can be explained that:

1. Computer Self Efficacy (CSE) variables affect the Perceived Ease of Use (PEOU) variable
2. Perceived Ease of Use (PEOU) variables affect the Perceived Usefulness (PU) variable

3. Perceived Ease of Use (PEOU) variables have an effect on Attitude Toward Using (ATU).
4. Attitude Toward Using (ATU) variables affect the Intention to Use (ITU) variable.
5. Intention to Use (ITU) variables affect variables Actual Usage Behavior (AUB).
6. Perceived Usefulness (PU) variables affect the Attitude Toward Using (ATU) variables.
7. Perceived Usefulness (PU) variable influences the Intention to Use (ITU) variable.
8. Perceived Usefulness (PU) variable influences the Actual Usage Behavior (AUB) variable.
9. Computer Self Efficacy (CSE) variables have no effect against Attitude Toward Using (ATU) variables.
10. Computer Self Efficacy (CSE) variables have no effect against the Intention to Use (ITU) variable.
11. Computer Self Efficacy (CSE) variables have no effect against the Actual Usage Behavior (AUB) variable.

Based on the explanation above, it can be concluded that the use of the erwe website is influenced by 6 latent variables namely Computer Self Efficacy (CSE), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude Toward Using (ATU), Intention to Use (ITU) and Actual Usage Behavior (AUB).

V. Conclusion

Based on the tests carried out on the hypothesis, it can be concluded as follows:

1. Factors that influence the level of acceptance of the erwe website are:
 - a. Computer Self Efficacy (CSE), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude Toward Using (ATU), Intention to Use (ITU), will affect the erwe website's Actual Usage Behavior (AUB).
 - b. Computer Self Efficacy (CSE) has no effect on Attitude Toward Using (ATU), Intention to Use (ITU) and Actual Usage Behavior (AUB) the use of the erwe website.
2. Causal relationship between factors that influence erwe application from this research model:
 - a. PEOU (Ease): That the website is erwe, easy to understand and easy to use.
 - b. PU (usefulness): That by using the erwe website, it becomes one of the ways to establish communication between citizens.
 - c. ATU (Attitude of use): That the website respondent (user) feels that he or she has accepted the means of communication that is woven through the erwe website.
 - d. ITU (Intent to use): That erwe website users still have a strong desire to continue to be able to use the erwe website as a means of communication between citizens.
 - e. AUB (Actual Usage Behavior): It can be concluded that the users of the erwe website

in this study the frequency of using this website is quite moderate and the usage level is being communicated among fellow believers.

3. The website can be accepted as a means and means of communication between citizens who are respondents in this research questionnaire.

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